WHAT IS CLAIMED IS:

1. Imaging apparatus, comprising:

a first device, for obtaining a first image, by a first modality, selected from the group consisting of SPECT, PET, CT, an extracorporeal gamma scan, an extracorporeal beta scan, x-rays, an intracorporeal gamma scan, an intracorporeal beta scan, an intravascular gamma scan, an intravascular beta scan, and a combination thereof, wherein said first image is registered to a system of coordinates;

a second device, for obtaining a second, structural image, by a second modality, selected from the group consisting of a three-dimensional ultrasound, an MRI operative by an internal magnetic field, an extracorporeal ultrasound, an extracorporeal MRI operative by an external magnetic field, an intracorporeal ultrasound, an intracorporeal MRI operative by an external magnetic field, an intravascular ultrasound, and a combination thereof; and

a computerized system, which comprises a registrator for co-registering said second, structural image to said system of coordinates, and an attenuation-instruction generator configured to compute a set of attenuation instructions for said first image, based on said second, structural image.

2. The imaging apparatus of claim 1, wherein said computerized system is further configured to compute, based on said a set of attenuation instructions an attenuation-corrected image of said first image.

3. The imaging apparatus of claim 2, wherein said computerized system is further configured to display a superposition of said attenuation-corrected first image and said second, structural image.

4. The imaging apparatus of claim 3, wherein said apparatus further includes an instrument, registered to said system of coordinates and visible on at least one of said first image and said second, structural image, and wherein said computerized system is further configured to guide said instrument in-vivo, based on said superposition.

5. The imaging apparatus of claim 1, wherein said registrator for co-registering said second, structural image to said system of coordinates relies on that said first and second devices share a single position-registration device, for co-registering said second, structural image to said system of coordinates.

6. The imaging apparatus of claim 1, wherein said registrator for co-registering said second, structural image to said system of coordinates relies on that said first and second devices have substantially equal position-registration devices, for co-registering said second, structural image to said system of coordinates.

7. The imaging apparatus of claim 1, wherein said registrator for co-registering said second, structural image to said system of coordinates relies on fiduciary marks visible both on said first image and on said second, structural image, for co-registering said second, structural image to said system of coordinates.

8. Imaging apparatus, comprising:

a first detector, for obtaining a first image, by a modality, selected from the group consisting of a gamma scan, a beta scan, and a combination thereof, wherein said first image is registered to a system of coordinates;

a second detector, for obtaining a second, structural image, by a modality, selected from the group consisting of ultrasound, MRI, and a combination thereof; and

a computerized system, which comprises a registrator for co-registering said second, structural image to said system of coordinates, and an attenuation-instruction generator configured to compute a set of attenuation instructions for said first image, based on said second, structural image.

9. The imaging apparatus of claim 8, wherein said computerized system is further configured to compute, based on said a set of attenuation instructions an attenuation-corrected image of said first image.

10. The imaging apparatus of claim 9, wherein said computerized system is further configured to display a superposition of said attenuation-corrected first

image and said second, structural image.

11. The imaging apparatus of claim 10, wherein said apparatus further includes an instrument, registered to said system of coordinates and visible on at least one of said first image and said second, structural image, and wherein said computerized system is further configured to guide said instrument based on said superposition.

12. The imaging apparatus of claim 8, wherein said registrator for co-registering said second, structural image to said system of coordinates relies on that said first and second devices share a single position-registration device, for co-registering said second, structural image to said system of coordinates.

13. The imaging apparatus of claim 8, wherein said registrator for co-registering said second, structural image to said system of coordinates relies on that said first and second devices have substantially equal position-registration devices, for co-registering said second, structural image to said system of coordinates.

14. The imaging apparatus of claim 8, wherein said registrator for co-registering said second, structural image to said system of coordinates relies on fiduciary marks visible both on said first image and on said second, structural image, for co-registering said second, structural image to said system of coordinates.

15. The imaging apparatus of claim 8, further comprising an ultrasound transducer operative for focused ablation.

16. The imaging apparatus of claim 8, designed as a rectum probe.

17. The imaging apparatus of claim 8, designed as an endoscope probe.

18. The imaging apparatus of claim 8, designed to be inserted through a trucar valve.

19. The imaging apparatus of claim 8, designed to be mounted on a resectoscope.

20. The imaging apparatus of claim 8, designed to be inserted in a catheter.

21. The imaging apparatus of claim 8, designed for intravascular imaging.

22. The imaging apparatus of claim 8, designed as a handheld, extracorporeal probe.

23. A rectal probe, comprising:

an intracorporeal portion, which comprises:

a first detector, for obtaining a first image, by a first modality, selected from the group consisting of a gamma scan, a beta scan, and a combination thereof, wherein said first image is registered to a system of coordinates; and

a second detector, for obtaining a second, structural image, by a second modality, selected from the group consisting of a ultrasound, MRI, and a combination thereof; and

a computerized system, which comprises a registrator for co-registering said second, structural image to said system of coordinates, and an attenuation-instruction generator configured to compute a set of attenuation instructions for said first image, based on said second, structural image.

24. The rectal probe of claim 23, further comprising movable collimators, operative as vents.

25. The rectal probe of claim 23, wherein said motor further includes motion and position registration in a linear direction into the rectum.

26. The rectal probe of claim 23, further comprising an ultrasound transducer, adapted for focused ablation.

27. An imaging method. comprising:

imaging by a first modality, selected from the group consisting of SPECT, PET, CT, an extracorporeal gamma scan, an extracorporeal beta scan, x-rays, an intracorporeal gamma scan, an intracorporeal beta scan, an intravascular gamma scan, an intravascular beta scan, and a combination thereof, wherein said first image is registered to a system of coordinates;

imaging by a second modality, a second device, for obtaining a second, structural image, by a second modality, selected from the group consisting of a three-dimensional ultrasound, an MRI operative by an internal magnetic field, an extracorporeal ultrasound, an extracorporeal MRI operative by an external magnetic field, an intracorporeal ultrasound, an intracorporeal MRI operative by an external magnetic field, an intravascular ultrasound, and a combination thereof;

co-registering said second, structural image to said system of coordinates; and

computing a set of attenuation instructions for said first image, based on said second, structural image.

28. The imaging method of claim 27, further comprising, based on said a set of attenuation instructions, computing an attenuation-corrected first image.

29. The imaging method of claim 28, further comprising displaying an attenuation-corrected first image.

30. The imaging method of claim 28, further comprising superimposing said attenuation-corrected first image and a second, structural image of said second, structural imaging modality.

31. The imaging method of claim 30, further comprising guiding an instrument based on the superposition of said attenuation-corrected first image and said second, structural image.

32. The imaging method of claim 30, further comprising performing focused ablation, based on the superposition of said attenuation-corrected first image and said second, structural image.

33. A probe comprising:
a nuclear-radiation detector of a non-parallel collimation; and
an ultrasound detector.

34. The probe of claim 33, wherein said non-parallel collimation is a single-collimator collimation.

35. The probe of claim 33, wherein said non-parallel collimation is a wide-angle collimation.

36. The probe of claim 33, wherein said non-parallel collimation is a narrow-angle collimation.

37. The probe of claim 33, wherein said non-parallel collimation is no collimation.

38. The probe of claim 33, adapted to be handheld.

39. The probe of claim 33, adapted for endoscopy.

40. A probe comprising:
a nuclear-radiation detector; and
an MRI detector, having an external magnetic field.

41. The probe of claim 40, adapted to be handheld.

42. The probe of claim 40, adapted for endoscopy.

43. An imaging method, comprising:
performing intravascular nuclear-radiation imaging;
performing intravascular ultrasound; and
co-registering the nuclear-radiation and the ultrasound images to a system of coordinates.

44. The imaging method of claim 43, comprising correcting the nuclear-radiation image for attenuation, based on the ultrasound image.

45. The imaging method of claim 44, comprising superimposing the corrected nuclear-radiation image and the ultrasound image.